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pare stomata on plants from both West and East, taking those of the same species or genus for comparison.

I have not yet completed a tabulated list of 100 specimens, so cannot as yet give my figures or draw definite conclusions. The results thus far seem somewhat confusing, but I am still inclined to think they will verify my supposition, for I find the stomata not only more distant, but somewhat smaller, on Western plants. When I have finished measuring and comparing my list of plants, I can draw more definite conclusions.

Other interesting things in regard to stomata were also noticed in my study. Almost every narrow-leafed plant studied had stomata on both surfaces of the leaf, as well as on the stem. The grasses and parallel-veined leaves have long, narrow stomata, arranged with their major axis parallel to the major axis of the leaf, while the stomata of the net-veined leaves seemed to be scattered irregularly over the surface, regardless of the axis, and somewhat broader than those of the narrow leaves. When there was any difference between the stomata of the upper and under surfaces, those on the lower were broader, in many cases being almost round.

This subject is very interesting, and there is much yet to be learned about stomates, their arrangement, distribution, and size, and their connection with the habits or location of various plants. This subject may have been well studied, but if it has been I am unable to find any literature on the subject. This study is very fascinating, so that any botanist cannot help enjoying it or discovering new facts.

It is to be hoped that other botanists will study the peculiarly Western types of our Kansas flora, and add something definite to our knowledge of their habits, structure, and forms.

ADDITIONS TO THE FLORA OF KANSAS.

BY B. B. SMYTH, TOPEKA.

The following species and varieties of plants, not heretofore reported, have been found growing within the State during the past two years, and are therefore added to the list of Kansas plants. Descriptions are given, as far as possible, of all plants not described in Gray's Manual (6th edition), or Coulter's Manual of Rocky Mountain Botany. Many of the descriptions are obtained from Coulter's Manual of the Phanerogams and Pteridophytes of Western Texas, being Contributions from the United States National Herbarium, vol. II. Descriptions of some of the plants are not at hand, and their existence in the State, though here reported, is not absolutely certain.

FLOWERING PLANTS.

1. Anemone patens L.: Linn county (Mrs. A. H. Merrell).

2. Delphinium carolinianum Walter: Stems 3 to 6 dm. high, slender, often softly pubescent; leaves deeply 3- to 5-parted, the divisions two to three times cleft; the lobes all narrowly linear; raceme strict; flowers whitish; spur ascending; pods erect. Frequent on rocky hillsides; our most common delphinium; heretofore known as D. azureum Mx. (Smyth).

3. Delphinium scopulorum Gray: Pottawatomie county (collected by F. F. Crevecœur, and determined by Prof. L. H. Dewey).

4. Draba caroliniana Walt., var. micrantha Gray: Franklin county (collected by Prof. W. E. Castle).

5. Erysimum asperum DC., var. arkansanum Gray: Sherman, Wallace, Finney and Hamilton counties (S.)

6. Nasturtium sphærocarpum Gray: Ford county (Contributions from the U. S. National Herbarium, vol. I, p. 202).

7. Lechea tenuifolia Mx.: Stafford county (Cont. Nat. Herb., vol. I, p. 202).

8. Viola hastata Mx.: Pottawatomie county (collected by F. F. Crevecœur, Onaga, and determined by Prof. L. H. Dewey).

9. Viola lanceolata L.: Northeastern Kansas.

10. Ionidium polygalæfolium Dent.: Sumner county.

11. Arenaria michauxii Hook. fr.: Northern and northwestern Kansas; frequent in rocky and chalky bluffs (Smyth & Harshbarger).

12. Gypsophila muralis L.: Sherman county; escaped from garden (S.)

13. Lychnis githago L.: Shawnee and Pottawatomie counties; in wheat fields (S.)

14. Stellaria media Smith: Franklin county, garden (Professor Castle).

15. Mollugo verticillata L.: Reno and Pratt counties (S.)

16. Oxalis violacea L., forma alba: Doniphan county (Minnie Blake); Franklin county (Castle).

17. Ptelea trifoliata L., var. mollis T. & G.: Labette county (Dr. W. S. Newlon).

18. Ilex decidua Walt.: Sumner county (S.)

—. Berchemia scandens Trelease (*B. volubilis* DC.): Cherokee county.

19. Tribulus maximus L.: Wallace and Hamilton counties (S.)

20. Vitis novo-mexicana Munson: Montgomery, Barber and Hamilton counties (Prof. A. S. Hitchcock, Manhattan).

21. Æsculus arguta Buckley: Shrub 9 to 15 dm. high; leaflets 7, narrowly lanceolate, mostly long acuminate, glabrous, sharply serrate, 5 to 10 cm. long; stamens erect or slightly curved, much longer than the pale yellow corolla; flowers sometimes in dense, often in loose, inflorescence; fruit covered with prickles when young. Southeastern Kansas, along streams (S.)

22. Krameria secundiflora DC.: A decumbent, silky villous herb, ligneous only at base; leaves narrowly linear (or the lower cauline ones oblong lanceolate or obovate lanceolate), about 18 mm. long, those of the branches usually longer; peduncles 2-bracted; sepals ovate lanceolate, nearly equal; fruit armed with stout and straight retrorsely-scabrous spines. Morton county (Cont. Nat. Herb., vol. I, p. 203).

23. Amorpha microphylla Pursh: Rooks county (Bartholomew); Phillips and Pratt counties (S.)

24. Astragalus gracilis Nutt.: Norton and Sherman counties (Smyth & Harshbarger).

25. Astragalus lotiflorus Hook., var. brachypus Gray: Pawnee and Ford counties (Cont. Nat. Herb. vol. I, p. 204).

26. Astragalus pictus Gray: Sherman and Cheyenne counties (S.)

27. Astragalus pictus, var. filifolius Gray: Hamilton county (Smyth); southwest Kansas (Carleton in Cont. Nat. Herb., vol. I, p. 227).

28. Astragalus purshii Dougl.: Rooks county (Bartholomew).

29. Dalea nana Torr.: Like D. aurea, but low, 10 to 15 cm. high, diffusely spreading, repeatedly branched, and leafy to the spikes; spikes small, on very short peduncles; flowers yellow; bracts as long as the calyx. Seward and Stevens counties (Cont. Nat. Herb., vol. I, p. 204).

30. Dalea rubescens Wats.: Seward county (S.)

31. Gleditschia triacanthos L., thornless form: Rooks county (Barth.); Topeka, Manhattan (S.)

32. Hoffmanseggia falcaria Cav., var. stricta E. M. Fisher, *n. v.*: Erect, 10 to 30 cm. high; stipules obtuse, villous on margin; peduncles long, bearing a loose raceme of suberect flowers; sepals obtuse; vexillum with claw usually more dilated; pod

long, usually on spreading pedicels; seeds 6 to 9. From Kansas southwestward. Collected in Kansas in 1867, by Doctor Bell; determined and named in 1892 by E. M. Fisher. Type in Gray Herbarium. (Cont. Nat. Herb., vol. I, p. 144.)

33. Hoffmanseggia jamesii Torr. & Gray, var. popenoensis Fisher, *n. v.*: Herbaceous, taller, with thick stems; upper stems and flowers black with large glands; pinnæ 7 to 9; leaflets more glandular; racemes denser; petals with villous veins; filaments larger, more villous. Collected in Kansas in 1876 by Prof. E. A. Popenoe, and named in 1892 by Mr. Fisher, as above. Type in National Herbarium. (Cont. Nat. Herb., vol. I, p. 150.)

34. Hosackia purshiana Benth., forma orientata: Plants 4 to 10 dm. high; branches north and south; leaves east and west, facing the sun all day; pods many, 40 to 300 on a plant. Pawnee, Barton, Reno and Stafford counties, on rich soil (S.)

35. Hosackia purshiana, var. pusilla: Plants 1 dm. high, scarcely branched; pods few, seldom exceeding three. Common in western Kansas (S.)

36. Indigofera leptosepala Nutt.: Norton, Wallace and Meade counties (S.)

37. Lespedeza striata L.: Franklin county, introduced (Castle).

38. Oxytropis monticola Gray: Kingman county (Carleton in Cont. Nat. Herb., vol. I, p. 222).

39. Oxytropis splendens Dougl.: Rooks county (Bartholomew).

40. Psoralea tenuiflora Pursh: West of 99th meridian. This is very distinct from P. floribunda Nutt., of eastern Kansas, which has of late years been catalogued as P. tenuiflora (S.)

41. Cerasus pumila Mx.: Phillips and Graham counties.

42. Geum vernum T. & G.: Franklin county (Castle).

43. Pyrus ioensis Bailey, *n. sp.*: Northeastern Kansas (Amer. Gard. XII, 473).

44. Ammannia auriculata Willd.: Rooks county (Bartholomew).

45. Gaura drummondii Torr. & Gray: Stem suffruticose at base, a little hairy below, virgately branched above; leaves somewhat canescently puberulent, lanceolate, acute, denticulate or somewhat sinuate; spikes slender, few and loosely flowered; fruit sessile, very abruptly narrowed at the base and terete when mature, ovate-pyramidal above, acute, with four strong carinate angles. Kiowa and Seward counties (S.)

46. Gaura sinuata Nutt.: Stem suffruticose, diffuse or decumbent, branching and very leafy at base, sending off slender and naked flowering branches, glabrous or hairy; leaves lanceolate linear, acute, remotely and acutely sinuate-toothed, glabrous; flowers loose, pediceled; fruit lanceolate or ovate, tapering at both ends. Seward county (S.)

47. Gaura villosa Torr.: Stems suffruticose, and with numerous very short, leafy branches at base, canescently puberulent, with villous hairs intermixed, and sending up naked and elongated glabrous and often paniculate flowering branches; leaves tomentose-canescent on both sides, lanceolate, remotely and acutely toothed or rarely entire; raceme loosely flowered; fruit slender, 4-sided, tapering at both ends, on a filiform pedicel, at length relaxed. Cimarron valley, Seward county (S.)

48. Œnothera hartwegi Benth.: Sherman and Meade counties (Smyth); Clark county (Cont. Nat. Herb., vol. I, p. 206).

49. Œnothera sinuata L., var. grandiflora Watson. Edwards county (Cont. Nat. Herb., vol. I, p. 206).

50. Mamillaria dasyacantha Eng.: Simple, nearly globose, 3.5 to 6.5 cm. high; tubercles terete, loosely arranged, slightly grooved, 8 to 10 mm. long, with somewhat villous axils; spines straight, more slender and soft than usual, often capillary, spreading, but not radiating, 12 to 24 mm. long, the exterior 25 to 35 white, the in-

terior 7 to 13 dusky-purple and longer; central spine single, erect, often wanting; berry central, ovate. Kingman county (Cont. Nat. Herb., vol. I, p. 207).

51. Sesuvium portulacastrum L.: Frequent in Kansas salt marshes (M. A. Carleton in Cont. Nat. Herb., vol. I, p. 232).

52. Cornus asperifolia Mx., var. drummondii Vasey: Pottawatomie county (Crevecœur).

53. Actinella acaulis Nutt.: Hamilton and Meade counties (S).

54. Actinella scaposa Nutt.: Sherman, Hamilton, Meade and Morton counties (S).

55. Artemisia filifolia Torr.: From Sherman to Barber county, and westward (S).

56. Artemisia frigida Willd.: Stems herbaceous, 1 to 5 dm. high, simple or slightly branched, in tufts from a woody base, very leafy, silky-canescent, or silvery; leaves twice ternately or quinately parted, the divisions narrowly linear; heads globose, racemose, 4 mm. diam.; flowers all fertile, marginal ones pistillate, corollas glabrous. Meade county, north and west.

57. Artemisia wrightii Gray: Rooks county (Bartholomew); Sherman, Finney, Kingman and Kiowa counties (Smyth); Meade county (Cont. Nat. Herb. vol. I, p. 209).

58. Baccharis wrightii Gray: Greeley county (Minnie Reed); Clark county (Cont. Nat. Herb. vol. I, p. 208).

59. Berlandiera lyrata Benth.: Stems low, with long, single-headed peduncles, the later from leafy stems or branches; canescent, with minute white or gray tomentum; leaves at length greenish above, variously lyrate-pinnatifid, attenuate at base; the lateral lobes oblong or narrower, obtusely dentate, sometimes incised; achenes obovate, the costa of the inner face strongly carinate. Morton county (Cont. Nat. Herb., vol. I, p. 208).

60. Cnicus undulatus, var. megacephalus Gray: Norton and Decatur counties (Smyth); Reno county (Cont. Nat. Herb., vol. I, p. 209).

61. Eupatorium hyssopifolium L.: Kansas City, Kas. (Cont. Nat. Herb., vol. I, p. 207). Probably recently introduced.

62. Franseria discolor Nutt.: Wallace and Seward counties (S).

63. Franseria tomentosa Gray: Along Arkansas and Cimarron rivers, southwest Kansas (S).

64. Gaillardia pulchella Foug.: Annual, hirsute, 3 to 5 dm. high; leaves from entire to pinnatifid; rays two-colored, lower part red-purple or darker, the upper or teeth yellow, at most 2.5 cm. long; chaff rather stout, hardly surpassing the mature achenes. From Norton to Barber county and west; common in spots on rich prairies (S).

—. Gutierrezia sarothræ Britton & Rusby (*G. euthamiæ* T. & G.): Common on rocky hills of western Kansas.

65. Gutierrezia texana T. & G.: Sumner county (S).

66. Haploesthes greggii Gray: Seward county, in alkaline lands (S).

67. Hymenopappus flavescens Gray: Stems leafy, densely white tomentose; leaves from pinnatifid to bipinnately parted, divisions narrowly to broadly linear; heads 8 to 10 mm. high; involucral bracts roundish obovate to ovate, with greenish-white or yellowish margins; achenes rather short villous; pappus of conspicuous spatulate 1-nerved scales. Common in southwest Kansas (Carleton in Cont. Nat. Herb., vol. I, p. 209.)

68. Krigia virginica Willd.: Shawnee county (Harshbarger).

69. Lactuca scariola L.: All through the State as far west as Sherman county; introduced within three years, and rapidly taking possession of dry places along the railroads (Smyth).

70. Lepachys tagetes L.: Common on rocky hills and dry ground west of 99° (S.)

71. Lepachys tagetes L., yellow-rayed form: Sherman county (Smyth & Harshbarger); Seward county (Carleton).

72. Melampodium cinereum DC.: Kiowa, Haskell and Meade counties (Smyth); Seward and Morton counties (Cont. Nat. Herb., vol. I, p. 208).

73. Polypteris texana Gray: Rather stout; leaves from lanceolate-linear to lanceolate-oblong, distinctly petioled; involucre 20- to 30-flowered, rayless, 6 to 10 mm. high, of spatulate-oblong bracts; pappus scales oblong-ovate to oblong-lanceolate, with slender, nearly complete or slightly excurrent costæ. Stevens and Morton counties (Cont. Nat. Herb., vol. I, p. 209).

74. Thelesperma filifolia Gray: Loosely branching and leafy; leaves not rigid, bipinnately divided into filiform lobes no wider than the rhachis; bracts of outer involucre 8, subulate linear, equaling or more than half as long as the inner, which are connate only to the middle; rays broad, over 12 mm. long; disk usually purple; pappus scales stout, triangular-subulate, not longer than the width of the achenes. Stafford and Kiowa counties (S.)

75. Samolus valerandi L.: Seward county (S).

76. Phlox paniculata L.: Pottawatomie county (Crevecœur, citing L. H. Dewey).

77. Lycopsis arvensis L.: Franklin county, one place, introduced (Castle).

78. Convolvulus incanus Vahl.: Morton county (Cont. Nat. Herb., vol. I, p. 212).

79. Ipomœa commutata Roem. & Schult.: Arkansas City (Cont. Nat. Herb., vol. I, p. 211).

80. Chamæsaracha sordida Gray: Wichita county, Garden City, and Arkalon, and westward, in barren flats (S).

81. Physalis hederæfolia Gray: Comanche and Clark counties (Cont. Nat. Herb., vol. I, p. 212).

82. Physalis virginiana Mills, var. ambigua Gray: Franklin county (Castle).

83. Mimulus glabratus HBK., var. jamesii Gray: Stafford county (Cont. Nat. Herb., vol. I, p. 212).

84. Pentstemon jamesii Benth.: Rooks county (Bartholomew).

85. Veronica scutellata L.: Rooks county (Bartholomew).

86. Aphyllon ludovicianum Gray: Norton, Decatur and Sherman counties (Smyth & Harshbarger); Comanche county (Cont. Nat. Herb., vol. I, p. 213).

87. Calamintha nuttallii Gray: Riley county.

88. Lycopus angustifolius Nutt.: Shawnee county (S.)

89. Scutellaria wrightii Gray: Franklin county (Castle).

90. Plantago patagonica Jacq., var. spinulosa Gray: Norton county.

91. Oxybaphus nyctagineus Sweet, var. pilosus Gray: Barber county (Cont. Nat. Herb., vol. I, p. 213).

92. Amarantus palmeri Wats.: Rooks county (Bartholomew).

93. Atriplex expansa Wats.: Southern Kansas; common in alkali and salt marshes (Carleton in Cont. Nat. Herb., vol. I, p. 231).

94. Chenopodium fremonti Wats.: Rooks county (Bartholomew).

95. Chenopodium fremonti, var. incanum Wats.: Norton county (Smyth & Harshbarger).

96. Kochia americana Wats.: Southwestern Kansas, in salt marshes (Carleton in Cont. Nat. Herb., vol. I, p. 231).

97. Eriogonum lachnogynum Torr.: Morton county (Cont. Nat. Herb., vol. I, p. 214).

98. Phoradendron flavescens Nutt.: Labette county (Dr. W. S. Newlon).

99. Euphorbia cordifolia L.: Rooks county (Bartholomew).

100. Euphorbia cuphosperma Boiss.: Rooks county (Bartholomew).

101. Euphorbia fendleri Torr. and Gray: Meade and Comanche counties.

102. Euphorbia heterophylla L.: Shawnee, Morris and Cowley counties, in woods.

103. Euphorbia hirtula Eng.: Rooks county (Bartholomew).

104. Euphorbia peplidion Eng.: Meade county, on chalk hills.

105. Stillingia sylvatica L.: Cowley and Stafford counties, in salt marshes.

106. Ulmus alata Mx.: Cherokee and Labette counties (Doctor Newlon).

107. Smilax ecirrhata Wats.: Franklin county (Castle).

108. Erythronium mesochoreum E. B. Knerr: Leaves lance-linear, bright green beneath a faint bloom, never mottled with purplish blotches, averaging $\frac{1}{2}'$ to $\frac{3}{4}'$ wide by 6′ to 8′ and sometimes 10′ long; perianth white, tinged a delicate lavender along the veins, and with a yellow blotch toward the base, half reflexed when in full bloom, 1′ to 2′ long; style slender, club-shaped, arising at a slight angle or almost straight from the ovary; stigmas three, recurved, distinct; ovary oblong, bluntly triangular, with sides convex; ovules oblong ovoid; capsules oblong or elongated obovate, $\frac{3}{4}'$ to $1\frac{1}{4}'$ long; sterile plants with but one leaf, appearing later than the fertile two-leafed forms, and few in comparison; corm more or less elongated, consisting of several, one within the other, the outermost enlarging for next year's plant (no underground runners producing corms at their extremities as in *E. albidum*). Open, grassy hilltops and north-facing slopes, as well as in like wooded localities, March and early April, Atchison county.—Smyth's Check List of the Plants of Kansas.

109. Tradescantia virginica L., var. villosa Wats. Barton and Russell counties (S.); Rooks county (Bartholomew).

110. Ruppia maritima L.: Stafford county, in salt marsh (Cont. Nat. Herb., vol. I, p. 217).

111. Cyperus hallii Britton: Sumner county (Cont. Nat. Herb., vol. I, p. 217).

112. Cyperus strigosus L., var. capitatus Bœckl. Kingman county (Cont. Nat. Herb., vol. I, p. 217).

113. Heteranthera limosa Vahl.: Rooks county (Bartholomew).

114. Scirpus atrovireus Muhl., var. pallidus Britt.: Cloud county (S.)

115. Scirpus hallii (Gray) Britt.; Rooks county (Bartholomew).

116. Andropogon hallii, var. flaveolus Hackel: Kingman and Kiowa counties (Carleton in Cont. Nat. Herb., vol. I, p. 222).

117. Andropogon saccharoides Swz., var. submuticus Vasey: Barber and Comanche counties.

118. Aristida dispersa Trin. & Rup.: Clark county (Cont. Nat. Herb., vol. I, p. 218).

119. Aristida humboldtiana Trin. & Rup.: Seward and Meade counties (Cont. Nat. Herb., vol. I, p. 218).

120. Aristida oligantha Mx., var. minor Vasey: Rooks county (Bartholomew).

121. Aristida purpurea Nutt., var. berlandieri Torr.: Rooks county (Bartholomew).

122. Aristida purpurea, var. fendleriana Coulter: Phillips county (Smyth & Harshbarger).

123. Aristida purpurea, var. hookeri Torr.: Rooks county (Bartholomew); Ford county (Carleton).

124. Beckmannia erucæformis Host.: Cheyenne and Sherman counties, in water holes, introduced from the West (Smyth).

125. Eragrostis pectinacea, var. spectalilis Gray: Sedgwick and Sumner counties (Smyth); Barber county (Cont. Nat. Herb., vol. I, p. 219).

126. Eriochloa punctata Hamil.: Clark county (Cont. Nat. Herb. vol. I, p. 218).

127. Muhlenbergia gracillima Torr.: Clark county (Cont. Nat. Herb., vol. I, p. 218).

128. Panicum nitidum Lam.: Rooks county (Bartholomew). This is distinct from P. sphærocarpon Ell., with which it has heretofore been confounded.

129. Panicum virgatum L., var. glaucum Vasey: Rooks county (Bartholomew).

130. Setaria perennis Hall: Culm ascending or erect, 3 to 7 dm. high; spike cylindrical, simple, green, 2 to 7 cm. long; bristles few, little longer than the spikelets. Propagates freely by slender perennial rootstocks, and seldom ripens seed where cattle freely graze. Frequent in damp alkaline and saline bottoms in central and southwestern Kansas. Resembles and may be a form of S. caudata R. & S.—Smyth's Check List of the Plants of Kansas.

131. Sporobolus pilosus Vasey: Perennial, from thick roots; whole plant pale green; culms cespitose, rigid, erect, about 1½ ft. high, leafy, particularly at the base, mostly simple; sheaths smooth, the uppermost sheathing the base of the panicle, the lower crowded and flattened; ligule inconspicuous; the throat, margin and both sides of the lower blades pilose, the upper ones involute and attenuated to a long point, shorter than the culm; panicle terminal, spike-like, 2 to 3 inches long, close, the lower part included in the sheath; spikelets 2½ lines long, smooth, the lower empty glume one-fourth shorter than the upper, which equals the fl. gl. and palet, all obtuse. Resembles S. asper, which has the leaves longer than the culm, both empty glumes shorter than the flower, and the leaves smooth or not pilose. Collected in Kansas by B. B. Smyth.—Botanical Gazette, vol. XVI, p. 26.

132. Sporobolus texanus Vasey: Perennial; culms 3 dm. high, rather rigid, and rarely branching below, the upper half occupied by the capillary-branched panicle; leaves linear lanceolate, rigid, 2.5 to 7.5 cm. long, acuminate, light green, scabrous above; the lower sheaths and ligule covered with loose white hairs; panicle half the length of the plant, sheathed at the base, becoming diffuse, the branches mostly single and few-flowered, the lower 5 to 8 cm. long; spikelets about 4 mm. long, on capillary pedicels; empty glumes unequal, the lower ones acute, less than half as long as the upper, the latter as long as the spikelet. Resembles S. asperifolius, but with simple, erect culms, and more rigid. Clark county (Cont. Nat. Herb., vol. I, p. 219, citing vol. III, p. 63).

MOSSES.

133. Coscinodon wrightii Sull.: Rocks, W. K.; frequent (S.)

134. Orthotrichum cupulatum Hoffm., var. minus Sull.: Rocks, Riley county (collected by Minnie Reed, Manhattan, and determined by Mrs. Elizabeth T. Britton, Columbia College, New York city).

135. Leptobryum pyriforme Schimp.: Shady ground, rotten wood, etc., E. K. (S.)

136. Webera nutans Hedw.: Wet ground, etc., E. K. (S.)

137. Timmia cucullata Mx.: On damp ground, E. K. (S.)

138. Meteorium nigrescens Mitt.: Shawnee and Riley counties (Miss Reed).

139. Leskea obscura Hedw.: Base of trees, low ground, Pottawatomie county (Miss Reed).

140. Cylindrothecium compressum B. & S.: Base of trees; common (S.)

141. Climacium americanum Brid.: Rotten log, in shady thicket, Shawnee county (collected by B. B. Smyth, and determined by Dr. G. N. Best, Rosemont, N. J.)

142. Hypnum (Thuidium) gracile B. & S.: Rotten log, in shade, Shawnee county (S.—Doctor Best).

143. Hypnum (Rhynchostegium) geophilum Austin: Shady clays, Wilson county (Miss Reed).

144. Hypnum (Amblystegium) radicale Beau.: Roots of trees, etc., Riley county (Miss Reed); Shawnee county (S.—Doctor Best).

ALGÆ.

145. Chara gymnopitys A. Br. var.: Stafford county (Cont. Nat. Herb., vol. I, p. 219).

146. Chara coronata A. Br.: Norton county (S.)

147. Nitella capitata Ag.: Cloud county (Carleton).

PARASITIC FUNGI.

(Not heretofore published from Kansas in Kansas lists.)

148. Chætomium pusillum Ellis & Everhart, *n. sp.* (Proc. Phila. Acad. Nat. Sci., 1890, p. 220): On an old churn in cellar, Manhattan (Kellerman).

149. Parodiella grammodes (Kze.): Psoralea rust. On Psoralea tenuiflora, Sherman county, and all through western Kansas (collected by B. B. Smyth, and determined by G. H. Hicks, Michigan Agricultural College, Lansing, Mich.)

150. Rosellinia kellermanni E. &. E., *n. sp.* (Proc. Phila. Acad. Nat. Sci., 1890, p. 228): On rotten wood of Negundo aceroides, Manhattan (K. & Sw.)

151. Teichospora kansensis E. & E., *n. sp.* (l. c., 1890, 243): On outer bark of cottonwood trees (Dr. J. W. Eckfeldt, West Philadelphia, Pa.)

152. Nectria athroa E. & E., *n. sp.* (ibid., 1890, 247): On decaying sycamore log, Manhattan (K. & Sw.)

153. Thyronectria chrysogonum E. & E., *n. sp.* (ibid., 1890, 248): On bark of white elm, Manhattan (K. & Sw.)

154. Puccinia malvastri Pk.: Mallow rust. On Malvastrum coccineum, Sherman county (S.—Hicks).

155. Uromyces astragali (Opis.): Sacc. Loco rust. On Astragalus mollissimus, Phillips and Norton counties; very severe on the plants sometimes (S.—Hicks).

These 132 species of flowering plants and 23 flowerless plants, added to the lists of 2,260 already published, make a total 2,415 species of plants in Kansas, including 1,790 flowering plants, 40 ferns and filicoid plants, 108 mosses, 3 algæ (2 Charæ and 1 Nitella), 7 fungi (mushrooms and puffballs), 1 liverwort (Marchantia polymorpha), and 8 parasitic fungi, published in these transactions at various times since 1876 by J. H. Carruth and the writer, and 458 species of parasitic fungi, published in volumes IX, X, XI and XII of these Transactions, by Professors Kellerman, Carleton, and Swingle.

The above number does not include any lichens, of which 35 species have been published by F. W. Cragin in Washburn Bulletin, any scale mosses, any liverworts, except M. polymorpha, as just stated, or 150 species of fungi (mushrooms, etc.), published by Professor Cragin in Washburn Bulletin. The inclusion of these lists makes in the aggregate 2,640 species, and the determination of material in hand will probably increase the number of Kansas plants to 2,750, as some of these classes are well represented in the State.

There are other species of flowering plants undiscovered all through the State, and much undiscovered material in the flowerless plants; and it now remains for some competent person to work up and verify the material on hand, and construct a new and more accurate list.